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**A CO-PRODUCED SELF-MANAGEMENT PROGRAMME IMPROVES PSYCHOSOCIAL
OUTCOMES FOR PEOPLE LIVING WITH DEPRESSION**

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Abstract

Purpose: There is growing interest in self-management support for people living with mental health problems. This paper describes the evaluation of a co-designed and co-delivered self-management programme (SMP) for people living with depression delivered as part of large scale National Health Service quality improvement programme, which was grounded in the principles of co-production. We investigated whether participants became more activated, were less psychologically distressed enjoyed better health status, and quality of life, and improved their self-management skills after attending the 7 week SMP.

Design: We conducted a longitudinal survey of 114 people living with depression who attended the SMP. Participants completed self-reported measures before attending the SMP and at 6 months follow-up.

Findings:

Patient activation significantly improved 6 months after the SMP (**baseline** $M=49.6$ $SD=12.3$, follow up $M=57.2$, $SD=15.0$, $t(113)=4.83$ $p<0.001$; $d=0.61$) Participants' experience of depression symptoms as measured by the Patient Health Questionnaire-9 significantly reduced (baseline $M=15.5$, $SD=6.8$, follow up $M=10.6$, $SD=6.9$, $t(106)=7.22$ $p<0.001$, $d=-0.72$). Participants' anxiety and depression as measured by the

Hospital Anxiety Depression Scale also decreased significantly (baseline anxiety: $M=13.1$, $SD=4.2$, follow up $M=10.2$, $SD=4.4$, $t(79)=6.29$, $p<0.001$, $d=-0.69$); (baseline depression: $M=10.3$, $SD=4.6$, follow up $M=7.7$, $SD=4.5$, $t(79)=5.32$, $p<0.001$, $d=-0.56$). We also observed significant improvement in participants' health status (baseline $M=0.5$, $SD=0.3$, follow up $M=0.6$, $SD=0.3$, $t(97)=-3.86$, $p<0.001$, $d=0.33$), and health-related quality of life (baseline $M=45.4$, $SD=20.5$, follow up $M=60.8$, $SD=22.8$, $t(91)=-2.71$, $p=0.008$, $d=0.75$). About 35% of participant showed substantial improvements of self-management skills.

Originality/value: The co-produced depression SMP is innovative in a UK mental health setting. Improvements in activation, depression, anxiety, quality of life and self-management skills suggest that the SMP could make a useful contribution to the recovery services in mental health.

Keywords: Co-production, self-management, patient activation, depression, recovery.

A CO-PRODUCED SELF-MANAGEMENT PROGRAMME IMPROVES PSYCHOSOCIAL OUTCOMES FOR PEOPLE LIVING WITH DEPRESSION.

INTRODUCTION

Co-production

In the UK, there is growing interest in applying co-production to public services such as social care and health services, where the focus on co-production is at the level of a service to an individual rather than with organisational or community co-production. During the 1980s Anna Coote, the then Director of Health Policy at the King's Fund, introduced the concept of co-production as a way to understand the relationship between clinicians and patients in health services. This concept of collaborative co-production fits alongside other changes in the delivery of services to people with long-term health and social care needs.

Since the mid-1990s, a combination of factors highlighted the need to attend to alternative models of delivery of services, including co-production (Needham and Carr, 2009). Firstly, the prevalent market model of public service delivery in the UK was found to give a poor return on investment (Boyle, 2004; Coote, 2002; Needham and Carr, 2009). More participatory ways of service delivery are actively sought by policy makers within social care and in promoting social capital (Cayton, 2004; Needham and Carr, 2009).

In the UK, the Government's mental health strategy, *No Health Without Mental Health*, aimed to improve the mental health and wellbeing of the population and keep people well (Department of Health, 2011).

A recent report commissioned by MIND, the UK mental health charity, which reviewed some of the key literature on co-production in mental health and consulted mental health co-production specialists, concluded that the term co-production is "largely absent" from the mental health literature (Slay and Stephens, 2013).

Slay and Stephens (2013) defined co-production in mental health as;

"A relationship where professionals and citizens share power to plan and deliver support together, recognising that both partners have vital contributions to make in order to improve quality of life for people and communities" (Slay and Stephens, 2013: 3)

They describe six principles, which they consider to be the foundation of co-production:

1. **Taking an assets-based approach:** transforming the perception of people so that they are seen not as passive recipients of services and burdens on the system but as equal partners in designing and delivering services.
2. **Building on people's existing capabilities:** altering the delivery model of public services from a deficit approach to one that provides opportunities to recognise and grow people's capabilities and actively support them to put these to use at an individual and community level.
3. **Reciprocity and mutuality:** offering people a range of incentives to work in reciprocal relationships with professionals and with each other, where there are mutual responsibilities and expectations.
4. **Peer support networks:** engaging peer and personal networks alongside professionals as the best way of transferring knowledge.

5. **Blurring distinctions:** removing the distinction between professionals and recipients, and between producers and consumers of services, by reconfiguring the way services are developed and delivered (Slay and Stephens, 2013: 3).

Slay and Stephens (2013) also describe how three core psychological needs of autonomy, relatedness and competency, core concepts of the Self Determination Theory (SDT) map onto the six underlying co-production principles. For example, autonomy maps onto blurring distinctions and facilitating not delivering. Competence maps onto assets and capabilities. Relatedness maps onto mutuality and peer support.

In their updated report in 2012, *Personalisation: a rough guide*, The Social Care Institute for Excellence (SCIE) identified several core principles for putting people at the centre of their own care, which are relevant to this paper (Social Care Institute for Excellence, 2012). These include:

- Ensuring that people have access to information, advocacy and advice, including peer support;
- Finding new collaborative ways of working (sometimes known as co-production) that support people to actively engage in the design, delivery and evaluation of services (Social Care Institute for Excellence, 2012: 2).

According to Carr (2010) the recovery approach in mental health has significant parallels with personalisation. Both are about the individual determining their own life and being supported to be an active member of their community (Carr, 2010). A central concept of recovery is:

“About building a meaningful and satisfying life, as defined by the person themselves, whether or not there are ongoing or recurring symptoms or problems [and] self-management is encouraged and facilitated” (Shepherd et al., 2008).

The National Health Service in England transformed the delivery of psychological services through the introduction of the Improved Access to Psychological Therapies (IAPT). It was launched in 2008 to enable swift access to evidence-based, Cognitive Behavioural Therapy (CBT) (Department of Health, 2008) for people experiencing from common mental health disorders (CMHDs) including depression and anxiety utilising a 'stepped care model'. Despite its success and consequent growth IAPT has created significant waiting times and the level of need remains high and many people with mental health problems do not engage with formal psychological therapy services (Richards and Borglin, 2011) and consequently the need remains high. Some commentators have argued that the narrow focus on providing CBT, largely via one-to-one and/or computerised interventions is not effective in building personally sustainable change, and that the role of mutually supportive self-help and self-management interventions involving the voluntary sector should be explored to enable services to be sustainable (Gilbert, 2010).

In this paper we are presenting a model of co-production as applied to a group-based self-management programme (SMP), for people with depression, which involves interpersonal interaction between patient and clinician and which is supported by co-production design and delivery. The depression SMP (described in detail below) is similar in content and process to IAPT and could potentially meet some of the demand for mental health support . The dominant model of group-based SMPs currently in England and Wales for people with long-term conditions (including mental health problems) is the Expert Patients Programme (EPP). Slay and Stephens (2013) describe the EPP as a professionally designed intervention, which is delivered by trained service users. They argue that co-production will only flourish if services and interventions are co-design and co-delivered by professionals and service users.

Co Creating Health- A quality Improvement co-production intervention

The Health Foundation, which is an independent charity working to continuously improve the quality of healthcare in the UK, sought to develop a national quality improvement demonstration programme. The approach, called Co-Creating Health (CCH), was influenced by the policy context around self-management in the UK and on reviews of research and practice, and emerging quality improvement programs, especially those using some or Wagner's entire chronic care model (CCM) (Wagner, 1998).

According to the CCM, one of the main objectives for health services is to support self-management, which needs to be embedded in a system that includes knowledgeable and confident patients, prepared clinicians and a responsive and flexible administrative structure (Wagner et al., 2001). CCH brought together two concepts self-management support and co-production and provided support at three levels the patient, clinician and service level. CCH focused on four LTCs: chronic obstructive pulmonary disease (COPD), diabetes, musculoskeletal pain and depression across eight National Health Service (NHS) sites.

The recognition of the contribution of service users in the design and delivery of the patient self-management programme and clinician training programmes is the founding principle of the co-produced CCH model (Realpe and Wallace, 2010). The depression specific content was co-produced by the demonstration sites, with input from clinicians and mental health service users who were also members of the demonstration site project steering group. The underlying assumptions of co tutoring are that each has their respective expertise to offer, and that co tutoring offers opportunities for learning by seeing the tutors act co-productively, a form of learning by observing known as role modelling.

Peer and clinical tutors attend 4 days of classroom based training, which involves brief motivational interviewing and behaviour change skills, group facilitation skills and delivery practice of the SMP activities. Delivery of the SMP is guided by a tutor's manual to ensure consistency of delivery and content. Tutors are trained and accredited to a rigorous set of quality standards with training and course delivery focusing on adherence to the activity times and sequence of activities as set out in the manual to ensure fidelity. All activities can be either delivered by the health professional or peer tutor. Tutors decide in advance which activities they would like to lead on. The use of a peer and clinical tutor to deliver the SMP brings different but complimentary skills, which are consistent with the principles of co-production. There is value in the peer tutors' life experience of living with a LTC and the medical expertise of the health practitioner (Ahmad et al., 2009).

In this paper we describe the evaluation of a co-produced and co delivered depression SMP on patient activation, depression, anxiety, health status, quality of life, and self-management ability outcomes of people living with depression. Outcomes for the other three LTCs are reported elsewhere (Wallace et al., 2012) as are the CCH clinician self-management support practices (Kosmala-Anderson et al., 2010a; Kosmala-Anderson et al., 2010b). Depression is a significant global issue, with an estimated 350 million people suffering worldwide (World Health Organisation, 2012). Depression is projected to be the second highest cause of disability-adjusted life years (DALYS) in the developed world (NICE, 2011). A survey of psychiatric morbidity in the UK found prevalence rates for depressive episodes of 2.6%. The prevalence rose sharply to 11.4% for mixed depression and anxiety (Singleton et al., 2001).

METHODS

Organisational setting

Two healthcare organisations: Wandsworth Teaching Primary Care Trust & South West London and St George's Mental Health NHS and Torbay Care Trust & Devon Partnership Trust were CCH depression demonstration sites.

Patients

Patients' inclusion criteria were to be over 18 years of age, be diagnosed with **any diagnosis of** depression and be physically able to attend a seven session group-based SMP.

Procedure

Depression patients seen in primary or secondary care settings were informed by their providers about an opportunity to attend a 7-week SMP and received instructions how to enrol. Patients who wished to attend the SMP registered their interest via a dedicated recruitment telephone helpline. The contact details of patients who consented to take part in the evaluation were passed to the evaluation team. Pre-course questionnaires (Time 1) were mailed out to patients by the evaluation team. Approximately 7-10 days after the questionnaires were mailed reminder letters and follow-up calls prior to attendance were made to improve response rates. In keeping with the real world setting of the evaluation, patients who chose not to participate in the evaluation were not excluded from the SMP. All patients were mailed out 6 month follow-up questionnaires (Time 2). Two reminder follow-up contacts (letters and/or telephone calls) were made. The first reminder was approximately 7-10 days and the second reminder approximately 14-21 days after the follow up questionnaire was originally mailed. During the second attempt patients were offered the option to verbally complete the primary outcome measure, the Patient Activation Measure (Hibbard et al., 2004).

The study protocol was approved by the Brighton and Hove City Teaching PCT Multi Centre Research Ethics Committee 07/H1107/143.

Depression self-management programme

The Health Foundation commissioned the Expert Patients Programme Community Interest Company (EPPCiC) to develop the SMP. Some of the structure, content and theory of the CCH SMP were based on the Stanford University Chronic Disease Self-Management Course (Lorig and Holman, 2003), which in the UK is known as the Expert Patients Programme. The SMP was a 7 week, 3 hour group-based SMP co-delivered by a clinical tutor (e.g. psychologist) who worked locally in the relevant pathway of care, and a service user (peer) tutor who had experience of these services.

The SMP is grounded in social learning theory (Bandura, 1977) and aims to increase self-efficacy and activation, and reduce learned helplessness associated with depression through skill mastery, role-modelling, persuasion, re-interpretation of symptoms, problem solving, decision-making and action planning.

The SMP contains 27 behaviour change techniques, including those that have a strong evidence base such as goal setting, action planning and problem solving [19], plus weekly depression specific content including: i) what is depression?; ii) identifying and Re-interpreting Feelings; iii) handling challenging or unhelpful emotions; iv) breaking out of Inactivity; and v) positive self-talk. See Table 1 for the SMP weekly content.

Insert table 1 here

Measures

Demographic information such as age, gender, employment status and co-morbidity, was collected at baseline only. Five outcome measures were selected to best capture the important outcomes of the SMP. A detailed description of the outcome measures is presented below and a summary in Table 2.

Patient Activation Measure (PAM)

The PAM assesses patient activation (Hibbard et al., 2004), which is conceptually similar to self-efficacy. It comprises 13 items that assess patient knowledge, skill and confidence for self-management. The PAM has a theoretical range from 0 to 100. Higher scores indicate greater activation. An improvement in 4 points on the PAM scale is considered meaningful as this is the level of increase which is associated with performing a range of self-management behaviours (Hibbard, 2009; Hibbard et al., 2007; Fowles, 2007).

Patient Health Questionnaire (PHQ-9)

Patient Health Questionnaire (PHQ-9) is a 9 item measure which assesses a patients' experience of depression symptoms with each item scored from 0 (not at all) to 3 (nearly every day). Items are summed to give an overall rating between 0-27 with higher scores indicating greater depression severity. Scores of 5, 10, 15, and 20 represent cut points for mild, moderate, moderately severe and severe depression, respectively (Kroenke et al., 2001).

A 5-point difference in PHQ-9 (depression measure also used in IAPT) scores is advocated as the minimal clinically important difference for individual change (Lowe et al., 2004). IAPT classify scores of ≥ 10 as "cases". Recovery rates are calculated amongst those patients who have received at least two treatment sessions, score ≥ 10 (cases) prior to treatment and score <10 post-treatment.

Hospital Anxiety and Depression Scale (HADS)

The Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983) provides separate scores for anxiety and depression ranging from 0 - 21, with higher scores indicating greater anxiety and greater depression.

EuroQol

The EuroQol index (EQ 5D index) and the EuroQol Visual Analogue Scale (EQ VAS) are widely used measures of health status and health-related quality of life respectively (Kind et al., 1999). The EQ-5D index assesses patients' health state across five dimensions (self-care, mobility, anxiety/depression, usual activities and pain/discomfort) that are weighted to provide a utility value based on a population tariff, scores range from 0 (death) to a 100 (perfect health). The EQ VAS is a vertical rating scale health scored between 0 (worst imaginable health) and 100 (best imaginable health).

Health Education Impact Questionnaire (heiQ)

Self-management ability was measured using the heiQ (Osborne et al., 2007). Patients are asked to rate items on a 4 point likert scale ranging from “strongly disagree” (1) to “strongly agree” (4). Higher scores represent higher levels of self-management abilities. The eight scales are: positive and active engagement in life; health directed behaviour; skill and acquisition technique; constructive attitudes and approaches; self-monitoring and insight; health services navigation; social integration and support; emotional well-being.

Data collection and analysis

All data analyses were conducted using IBM SPSS Statistics 20. The main analysis was a per-protocol analysis, which included only patients who attended ≥ 5 SMP sessions (defined as course completers) and who returned 6 month follow-up questionnaires. The level of statistical significance was set at $p=0.05$.

Intention to treat (ITT) analysis was performed to ensure that the effectiveness of the programme has not been overestimated (Hollis and Campbell, 1999). It is recommended to use both approaches as per protocol analysis provides some idea about maximum treatment efficacy in patients who fully comply with prescribed treatment, while ITT analysis shows how effective the treatment is in real life situations (Armijo-Olivo et al, 2009).

We used “last observation carried forward” (LOCF) by replacing missing 6 month follow-up data (T2) with baseline data. Changes in the mean values of the patient outcomes were compared over time using paired T Tests and General Linear Model for repeated measures. For the per protocol analysis prognostic factors such as age, gender, long-term condition, co-morbidity, number of sessions attended and socioeconomic factors (education, employment status) were adjusted for analysis of covariance.

Effect sizes (Cohen’s d) were calculated as follows: the mean score at 6 months minus the mean score at baseline divided by the standard deviation at baseline. Boundaries recommended by Cohen (1998) were used to determine small (0.2), moderate (0.5) and large effect sizes (0.8).

Depression recovery rates were calculated as the proportion of patients who completed the SMP (attended ≥ 5 sessions) and who were classified as “cases” (PHQ-9 ≥ 10) prior to attending and classified as non-cases (PHQ-9 < 10) at 6 months follow up.

The heiQ scale developers recommend a distribution-based cut-off of $ES=0.5$ as a standardised cut-off. Based on this cut-off, three categories of change were defined: ‘substantial improvement’ ($ES \geq 0.5$), ‘minimal / no change’ ($-0.50 < ES < 0.50$), ‘substantial decline’ ($ES \leq -0.5$).

Insert table 2 here

RESULTS

SMP and questionnaire completion rates

In total, 514 people living with depression registered with the EPPCiC recruitment helpline and of these 177 (34%) patients did not attend the SMP. 314 patients completed baseline questionnaires. SMP completion rate (≥ 5 SMP sessions) was 63% (198/314). Where we could establish direct pairing of data from participants who completed baseline and 6 month surveys and who attended ≥ 5 SMP sessions for the per protocol analysis there were 114 matched PAM scores. Response rates were lower for other outcome measures ranging from 107 for PHQ-9 to 54 for Health Service Navigation (see Table 4 for response rates), as we only collected PAM (the primary outcome measure) data at 6 months follow-up among those patients who were subject to repeat follow-up attempts.

Demographic variables

Participant characteristics are summarised in Table 3. Participants were on average 49.4 years of age (SD 15.1), predominantly white ethnicity (87%) and female (70%). Overall, nearly two thirds (58%) owned their own home and only 17% lived alone. Nearly a third (30%) were in full or part time employment. Almost a half (47%) left education between 16 and 19 years of age, and 35% were educated post 19 years of age. Nearly two-thirds (65%) had a co morbid condition.

Insert table 3 here

Participants who completed the SMP tended to be significantly older (mean age 49 years compared to 45 years) than those who dropped out of the SMP (attended 0-4 sessions). Similarly participants who completed both baseline and 6 months follow up survey were significantly older than those who only completed baseline questionnaire (mean age 51 years compared to 46 years).

There were no other demographic differences between participants who completed the SMP and those participants who did not complete the SMP. There were no differences between participants who completed both baseline and follow up surveys and those who completed only baseline questionnaire on variables of gender, ethnicity, house ownership, living arrangements, education, employment, co-morbidity, or generic outcomes (patient activation, health status, quality of life).

Outcomes

Patient activation

Per protocol analysis showed that participants' activation significantly improved 6 months after completing the SMP (baseline $M=49.6$ $SD=12.3$, follow up $M=57.2$, $SD=15.0$, $t(113)=4.83$ $p<0.001$; $d=0.61$) (Table 4). None of the prognostic and demographic factors predicted patient activation over time. Intention to Treat (ITT) analysis produced similar results. 56.1% of participants showed a meaningful improvement (i.e. ≥ 4 points) in patient activation scores.

Depression

Per protocol analysis showed that participants' depression, as measured by the PHQ-9, decreased significantly 6 months after completing the SMP (baseline $M=15.5$, $SD=6.8$,

follow up $M= 10.6$, $SD= 6.9$, $t(106) = 7.22$ $p<0.001$, $d=-0.72$). (Table 4). ITT analysis produced similar results. The “recovery” rate among participants completing the SMP was 39%. Per protocol analysis showed that participants’ depression, as measured by the HADS decreased significantly 6 months after completing the SMP (baseline depression: $M=10.3$, $SD=4.6$, follow up $M= 7.7$, $SD=4.5$, $t(79) =5.32$, $p<0.001$, $d= -0.56$). (Table 4). ITT analysis produced similar results.

Anxiety

Per protocol analysis showed that participants’ anxiety, decreased significantly 6 months after completing the SMP (baseline anxiety: $M=13.1$, $SD =4.2$, follow up $M= 10.2$, $SD=4.4$, $t(79) =6.29$, $p<0.001$, $d= -0.69$)(Table 4). ITT analysis produced similar results.

Health status and health-related quality of life

Per protocol analysis showed that participants’ health status as measured by EQ-Index significantly improved 6 months after completing the SMP (baseline $M=0.5$, $SD=0.3$, follow up $M= 0.6$, $SD =0.3$, $t(97)=-3.86$, $p<0.001$, $d=0.33$), (Table 4). Per protocol analysis showed that participants’ health-related quality of life as measured by EQ-VAS significantly improved 6 months after completing the SMP (baseline $M=45.4$, $SD=20.5$, follow up $M= 60.8$, $SD=22.8$, $t(91) =-2.71$ $p=0.008$, $d = 0.75$). ITT analysis produced similar results for health status and health related quality of life. None of the prognostic and demographic factors predicted changes in health status and health related quality of life over time.

Self-management skills

Per protocol analysis showed that participants’ self-management skills in seven of the of the eight heiQ domains significantly improved 6 months after attending the SMP (table 4): Health Directed Behaviour (baseline $M=2.6$, $SD=0.7$, follow up $M=2.8$, $SD=0.7$, $t(78)=-2.45$, $p=0.016$, $d=0.28$); Positive and Active Engagement (baseline $M=2.3$, $SD=0.6$, follow up $M=2.7$, $SD=0.7$, $t(77) = -5.4$, $p=0.046$, $d=0.66$); Emotional Well-Being (baseline

$M=2.0$, $SD=0.6$, follow up $M=2.2$, $SD=0.6$, $t(78)=-2.02$, $p<0.006$, $d=0.33$); Self-Monitoring and Insight (baseline $M=2.8$, $SD=0.5$, follow up $M=3.0$, $SD=0.5$, $t(78)=-2.84$, $p<0.001$, $d=0.40$); Constructive Attitude Shift (baseline $M=2.3$, $SD=0.6$, follow up $M=2.7$, $SD=0.7$, $t(77)=-2.84$, $p<0.001$, $d=0.33$); Skills and Technique Acquisition (baseline $M=2.3$, $SD=0.5$, follow up $M=2.8$, $SD=0.6$, $t(76)=-6.35$, $p<0.001$, $d=1.00$); Social Integration and Support (baseline $M=2.4$, $SD=0.7$, follow up $M=2.7$, $SD=0.7$, $t(77)=-3.51$, $p<0.001$, $d=0.42$). There was no improvement in Health Service Navigation (baseline $M=2.83$, $SD=0.57$; follow up $M=2.81$, $SD=0.6$, $t(53)=0.20$, $p=0.837$, $d=-0.03$).

Cohen's d values ranged from 1.00 for Skills and Technique Acquisition to 0.03 for Health Service Navigation (Table 4). ITT analysis produced similar results. As shown in Table 5, almost a half (49.4%) of participants showed substantial improvements in Skills and Technique Acquisition. Between 30- 40% of participants substantially improved in Positive and Active Engagement, Emotional Wellbeing, Constructive Attitude Shift and Social Integration and support. Fewer participants (around a quarter) made significant improvements in Health Directed Behaviour, Health Service Navigation and Self-Monitoring and Insight.

Insert tables 4 and 5 here

DISCUSSION

There is growing interest both in co production in mental health (Slay and Stephens, 2013), and in providing self-management support, which includes information, behavioural and wellness skills training and social support to promote mental health recovery. The National Institute Clinical Excellence (NICE) currently recommends group-based peer support for people experiencing mild to moderate depression and co-morbid physical health problems (NICE, 2011; NICE, 2009a). It also recommends self-help groups for those suffering from mild-moderate depression alone (NICE, 2009b). This paper described the evaluation of a co-produced SMP for people living with depression

delivered in a real world health care setting. We found significant improvements in patient activation, depression, anxiety, health status, health-related quality of life and self-management skills.

Improvement in outcomes

People living with depression were significantly more activated after attending the SMP. Over half (56.1%) of participants reported a meaningful (≥ 4 point) improvement in activation. This is important because other research has shown that activated participants are more likely to participate in collaborative decision-making with their clinicians, report improved health-related behaviours and clinical outcomes and adhere to physical therapy (Hibbard and Tusler, 2007; Mosen et al., 2007; Skolasky et al., 2008). The 7.6 point mean improvement in the PAM score compares to a 3.7 mean improvement reported by participants with a serious mental illness attending a Stanford University adapted CDSMP depression SMP in the United States (Druss et al., 2010). The greater improvement reported in this study could be explained by the different types of mental illnesses in the two studies. Over a quarter of participants in the Druss et al. (2010) study had schizophrenia and over a third of participants had bipolar disorder. participants with these mental illnesses may be less likely to help by a “low intensity” self-management intervention.

The depression SMP is similar in content and process to IAPT. Participants attending the SMP reported significant improvements in anxiety as measured by the HADS and significant improvements in depression as measured by the HADS and the PHQ-9. Participants reported a mean decrease of 4.9 on the PHQ-9, which compares to a 6.9 mean decrease post treatment reported in the IAPT service (Department of Health, 2008) thus highlighting the potential for the SMP to be considered as useful adjunct intervention for treating people with depression. A 5-point difference in PHQ-9

(depression measure also used in IAPT) scores is advocated as the minimal clinically important difference for individual change (Lowe et al., 2004).

Participants also reported significant improvement in their health status, health related quality of life and their self-management skills. Almost a half (49.4%) of all participants showed substantial improvements ($ES \geq 0.5$) in self-management skills and technique acquisition. Significant improvement was reported in seven out of eight hei-Q domains.

The CCH SMP is a complex, multi component intervention and we can only speculate as to whether co-production was responsible in any way for the improved outcomes. Our observations (Ahmad et al., 2009; Sharma et al., 2013) of CCH SMP found that participants valued the peer support, offered by the other participants and the encouragement from tutors to achieve personally relevant and freely chosen goals.

The participants were positive about the use of a peer and a health professional tutor to deliver the SMP, feeling that this was a better model than previous SMP models where two peer tutors deliver the course (Ahmad et al., 2009; Sharma et al., 2013).

Participants recognised the different skills that each of the tutors brought to the SMP, valuing the peer tutors' life experience of living with a LTC, and also appreciating the medical expertise of the health practitioner. Peer tutors also stated that they felt that their contributions were grounded in an equitable relationship. These findings are consistent with some of the six principles of co-production described by Slay and Stephens (2013), - asset-based approach, building people's capabilities, reciprocity and mutuality, peer support networks, blurring distinctions, facilitating rather than delivering.

Collaborative co-production challenges the usual relationship between professionals and service users. It requires the latter to be considered experts in their own

circumstances and therefore capable of making decisions and having control as responsible citizens (Boyle et al., 2006). At the same time, co-production also implies a change in the role of the professionals from fixers of problems to facilitators who find solutions by working with their clients. Our observations of the CCH SMPs using a process evaluation based on the SDT theory (Ryan and Deci, 2000) showed co-delivery was largely a successful model and that peer and health professional tutors had similar motivational styles to promote participant engagement and learning (Sharma et al., 2013). Similar motivational and facilitative styles of delivery may be important in modelling and fostering co-production in wider healthcare consultations.

Limitations

This study contributes to the evidence linking mental health outcomes to co-produced SMPs. However, the results need to be interpreted with caution for several reasons. The questionnaire return rate at 6 months is lower than we have achieved in other self-management evaluations (Barlow et al. 2000; 2009) . We are unsure as to the exact reasons why this lower rate occurred and can only speculate that the pragmatic, real world design of the study, where greater emphasis and importance were afforded to implementation and delivery of the interventions rather than to the recruitment and retention of patients in the evaluation, could have impacted on this. Another reason for the low response rate could have been as a result of the unacceptable burden faced by people living with depression in having to complete 5 outcome measures comprising 82 items. In future, greater consideration should be given to investigating fewer, key outcomes thereby minimising participant burden and improving response rates.

The primary analysis was conducted on SMP completers (per protocol) which tests the efficacy rather than effectiveness of the treatment, i.e. the extent to which the treatment has the ability to achieve its intended effect under ideal circumstances' (Marley, 2000). This approach is prone to selection bias and could provide misleading results overestimating the effects of treatment (Armijo-Olivo, 2009). Thus the results of

per protocol analysis cannot be simply extrapolated to other patients who receive the treatment in real life situation. To prevent overestimating of the programme effectiveness we conducted ITT analysis. In general, effects are weakened in an ITT analysis (Wright and Simm, 2003). However, ITT analysis is also associated with some limitations, especially, as in the case of our study, when the dropout rates are large. This makes accurate estimation of the treatment effect very difficult, thus our results should be interpreted with caution (Baron et al, 2005). We used last LOCF to impute missing follow up data. Little and Yau (1996) suggest that LOCF can mask a deteriorating illness course since potentially worse values of an outcome are replaced by the last measurement. This may help explain why the ITT analysis in our study showed that the effects for some outcomes (e.g. Positive and Active Engagement) were not weakened.

Further limitations of our study include a lack of control group data and follow up data were only collected at 6 months follow up.

The contribution to impact of co-production of the SMP is unknown, and it is also not possible to assess whether it has more impact than other modalities such as peer-led or clinician-led SMPs. However, the size of improvements is generally consistent with randomised controlled trials of depression SMPs which are similar in process and content (Druss et al., 2010).

CONCLUSIONS

The co-produced and co-delivered SMP model is innovative in a UK mental health setting. The psychosocial improvements reported by the participants attending the SMP add to the limited evidence of the link between co-production and improved wellbeing personal resources and functioning (Slay and Stephens, 2013). Becoming more activated through the development of greater knowledge skills and confidence, feeling

less depressed and anxious and enjoying a better quality of life and becoming a better self-manager fits well with the concept of recovery in mental health.

The CCH depression SMP has the potential to be a suitable therapy for use in stepped care whereby limited resources are used to the greatest effect. Further some people living with depression may prefer attending SMPs because of the lack of stigma attached with something which promotes a strengths-based approach to coping and recovery rather than a deficit based approach. The SMP can be embedded in the existing pathway of care at relatively low cost and has a potential to generate significant health care savings if improvements in activation are translated into lower use of services. Cost-effectiveness studies are required to confirm this potential.

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Table 1 Depression SMP Content

<p>Session 1</p> <p>Activity 1: Tutors Welcome, Introduction and Ground rules</p> <p>Activity 2: What is self-management?</p> <p>Activity 4: What is depression?</p> <p>Activity 5: Setting goals and planning for action</p>	<p>Session 5</p> <p>Activity 1: Goal setting feedback and follow-up</p> <p>Activity 2: Recognising and managing setbacks</p> <p>Activity 3: Progressive muscle relaxation</p> <p>Activity 4: Breaking out of inactivity</p> <p>Activity 5: Managing our medication</p> <p>Activity 6: Positive self-talk</p> <p>Activity 7: Setting goals and planning for action</p>
<p>Session 2</p> <p>Activity 1: Goal setting feedback and follow-up</p> <p>Activity 2: Balancing life with depression</p> <p>Activity 3: What we believe about our depression</p> <p>Activity 4: Physical activity with depression</p> <p>Activity 5: Pursed-lip breathing</p> <p>Activity 6: Being thankful</p> <p>Activity 7: Setting goals and planning for action</p>	<p>Session 6</p> <p>Activity 1: Goal setting feedback and follow-up</p> <p>Activity 2: Preparing for a clinical consultation – setting an agenda</p> <p>Activity 3: Helping others to help us</p> <p>Activity 4: Making the most of consultations with health professionals</p> <p>Activity 5: What have we covered? What do you still need to know?</p> <p>Activity 6: Setting goals and planning for action</p>
<p>Session 3</p> <p>Activity 1: Goal setting feedback and follow-up</p> <p>Activity 2: Communicating with family and friends</p> <p>Activity 3: Identifying and re-interpreting feelings</p> <p>Activity 4: Becoming and staying active</p> <p>Activity 5: Setting goals and planning for action</p>	<p>Session 7</p> <p>Activity 1: Goal setting feedback and follow-up</p> <p>Activity 2: Responding to unanswered queries and concerns</p> <p>Activity 3: Recognising and managing fatigue</p> <p>Activity 4: Making choices, deals and decisions</p> <p>Activity 5: Guided imagery</p> <p>Activity 6: Planning to stay well</p> <p>Activity 7: Sharing our successes and longer-term goals</p>
<p>Session 4</p> <p>Activity 1: Goal setting feedback and follow-up</p> <p>Activity 2: Pacing</p> <p>Activity 3: It's the thought that counts</p> <p>Activity 4: Handling challenging or unhelpful emotions</p> <p>Activity 5: Introduction to mindfulness</p> <p>Activity 6: Setting goals and planning for action</p>	

Table 2: Participants' characteristics enrolling on the SMP and who returned a baseline questionnaire (N=302)

Characteristics	Mean (SD)
Age:	49.4 (15.1)
	%
Gender:	
Male	30
Female	70
Ethnic origin:	
White	87
Accommodation:	
Owner occupier	58
Living arrangements	
Live alone	17
Age left education:	
Below 16 years	17
16-18 years	47
≥19	35
Employment:	
FT/PT	30
Other (retired, housewife/husband, student)	57
Co-morbidity	65

Table 3: Baseline and 6 months post course scores (mean and SD)

Outcome variable	Baseline mean (SD)	6 months mean (SD)	Effect size of change	P value per protocol (N=114*)	P value intention to treat (N=314)
Patient Activation Measure (0-100 ↑ = better)	49.6 (12.3)	57.2 (15.0)	0.61	<0.001	<0.001
PHQ-9 (0-27 ↓ = better)	15.5 (6.8)	10.6 (6.9)	-0.72	<0.001	<0.001
HADS (0-21 ↓=better)					
Anxiety	13.1 (4.2)	10.2 (4.4)	-0.69	<0.001	<0.001
Depression	10.3 (4.6)	7.7 (4.5)	-0.56	<0.001	<0.001
EQ-Index Health Status (0-1 ↑ = better)	0.5 (0.3)	0.6 (0.3)	0.33	<0.001	<0.001
EQ-VAS HRQL (0-100 ↑=better)	45.4 (20.5)	60.8 (22.8)	0.75	0.008	0.002
heiQ (1-4 ↑ = better)					
Health Directed Behaviour	2.6 (0.7)	2.8 (0.7)	0.28	0.016	0.014
Positive and Active Engagement	2.3 (0.6)	2.7 (0.7)	0.66	0.046	<0.001
Emotional Well-Being	2.0 (0.6)	2.2 (0.6)	0.33	0.006	0.018
Self-Monitoring and Insight	2.8 (0.5)	3.0 (0.5)	0.40	<0.001	0.022
Constructive Attitude Shift	2.3 (0.6)	2.7 (0.7)	0.33	<0.001	<0.001
Skills and Technique Acquisition	2.3 (0.5)	2.8 (0.6)	1.00	<0.001	<0.001
Social Integration and Support	2.4 (0.7)	2.7 (0.7)	0.42	0.001	<0.001
Health Service Navigation	2.8 (0.6)	2.8 (0.7)	0.00	0.837	0.166

**For primary outcome measure (PAM). Sample size was smaller for other outcome measures*

Table 4 Distribution of the proportion of participants with “substantial improvement”, “minimal/no improvement”, or “substantial decline”

heiQ subscales	Substantial improvement (ES≥0.5)	Minimal / no change (-0.50<ES<0.50)	Substantial decline (ES≤-0.5)
Health Directed Behaviour	29.1%	58.2%	12.7%
Positive and Active Engagement	41%	53.8%	5.1%
Emotional Well-Being	34.2%	46.8%	19%
Self-Monitoring and Insight	26.6%	65.8%	7.6%
Constructive Attitude Shift	37.2%	57.7%	5.1%
Skills and Technique Acquisition	49.4%	45.5%	5.2%
Social Integration and Support	37.2%	52.6%	10.3%
Health Service Navigation	25.6%	60.3%	14.1%